62. (Amended) An isolated polypeptide encoded by a nucleic acid molecule having a nucleotide sequence encoding a polypeptide having the amino acid sequence:

Met Arg Leu Leu Xaa Leu Ser Xaa Leu Xaa Xaa Xaa Leu Xaa Leu Cys Xaa Xaa Xaa Xaa Ser Xaa Glu Gly Xaa Xaa Xaa Pro Ala Lys Xaa Xaa Xaa Xaa Arg Xaa Xaa Xaa Xaa Xaa Cys His Xaa Xaa Pro Xaa Xaa Xaa Xaa Xaa Xaa Xaa Lys Gly Xaa His Xaa Arg Xaa Cys Xaa Xaa Cys Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Trp Val Val Pro Gly Ala Leu Pro Gln Xaa,

wherein the residue at position 12 may be either methionine or isoleucine;

the residue at position 18 may be either cysteine or serine;

the residue at position 19 may be either isoleucine or valine;

the residue at position 22 may be either serine or threonine;

the residue at any of positions 25, 26, 61, or 64 may be either arginine or lysine;

the residue at position 27 may be either histidine or arginine;

the residue at position 51 may be either threonine or asparagine;

the residue at position 55 may be either asparagine or histidine;

the residue at position 81 may be either isoleucine or valine;

the residue at any of positions 5, 8, 10, 11, 14, 17, 20, 31, 32, 33, 34, 36, 40, 43, 44, 46, 47, 48, 49, 50, 52, 57, 59, 62, 66, 67, 68, 69, 70, or 71 may be any naturally occurring amino acid; and

the residue at any of positions 37, 38, 39, or 65 may be any naturally occurring amino acid or may be absent.

REMARKS

Claims 9, 13-16, 57, 58, 61, and 62, as amended, and claims 46, 47, 59, and 60, as filed, are pending in the instant application. Claims 40-42 have been canceled without prejudice or disclaimer. Support for the amendments to the claims can be found in the specification at, for example, page 2, lines 9-19; page 3, lines 1-4; page 23, lines 2-12; and in Figures 2 and 3. No new matter has been added as a result of the above-described amendments. The rejections set forth in the Advisory Action, and in the prior Office Action mailed April 23, 2002, have been overcome by amendment or are traversed by argument below.

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1. Rejections of claims 9, 14, 15, 40-42, 46, 47, and 57-62 under 35 U.S.C. § 112, first paragraph

The Office Action mailed April 23, 2002 asserts a rejection of claims 9, 14, 15, 40-42, 46, 47, and 57-62 under 35 U.S.C. § 112, first paragraph, on the grounds that the specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with the claims. The Action states that, given the broadest reasonable interpretation, the breadth of the claims in the present application encompass any and all isolated polypeptides. More specifically, the Action states that because claim 9 is not limited to the polynucleotide sequence of SEQ ID NO: 4, claim 9 encompasses any polypeptide produced by a process of culturing a host cell containing a vector encoding the polypeptide, wherein said vector comprises at least two contiguous residues of the polynucleotide sequence set forth in SEQ ID NO: 4. The Action also states that claims 57 and 59-61 are similarly drawn to the vast majority of polypeptides. The Action further states that because claim 14 only requires the claimed polypeptides to comprise an amino acid sequence of an ortholog of the polypeptide of SEQ ID NO: 5, claim 14 encompasses any polypeptide having an amino acid sequence comprising at least two contiguous amino acids of the amino acid sequence of an ortholog of the polypeptide of SEQ ID NO: 5. In addition, the Action states that because claim 15 permits any number of substitutions or truncations, claim 15 encompasses virtually every polypeptide having an activity shared by the polypeptide of SEQ ID NO: 5, including immunogenicity. The Action also states that claims 58-60 and 62 are similarly drawn to virtually every polypeptide.

Applicants have amended claim 9 to recite "[a] polypeptide having the amino acid sequence as set forth in SEQ ID NO. 5." Applicants contend that claim 9, as amended, no longer encompasses the vast majority of polypeptides, and respectfully request that this ground of rejection be withdrawn.

Applicants have amended claim 14 to delete the phrase "an amino acid sequence for an ortholog of SEQ ID NO: 5," thereby overcoming this ground of rejection. Withdrawal of this ground of rejection is therefore respectfully solicited.

Applicants have amended claim 57 to clearly indicate that the produced polypeptide is encoded by the nucleic acid molecule introduced into the host cell, that the produced polypeptide is a fragment of at least about 25 amino acid residues, but not more than 80 amino acid residues, and that

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the produced polypeptide upon injection into an animal produces an antibody that binds to the polypeptide as set forth in SEQ ID NO: 5. Applicants contend that claim 57, as amended, no longer encompasses the vast majority of polypeptides, and respectfully request that this ground of rejection be withdrawn.

Applicants have also amended claim 61 to recite that the isolated polypeptide upon injection into an animal produces an antibody that binds to the polypeptide as set forth in SEQ ID NO: 5. Applicants contend that claim 61, as amended, no longer encompass the vast majority of polypeptides. Applicants respectfully request that this ground of rejection be withdrawn.

Applicants have amended claim 58 to clearly indicate that the produced polypeptide is encoded by the nucleic acid molecule introduced into the host cell. Moreover, Applicants have amended claim 58 to delete the phrase "with at least one modification that is a conservative amino acid substitution, C-terminal truncation, or N-terminal truncation, wherein the polypeptide has an activity of the polypeptide set forth in SEQ ID NO: 5," and replace this phrase with language that positively recites the species of the claimed genus. The amendments to claim 58 – and similarly, the amendments to claims 15 and 62 – are based on an amino acid sequence comparison of the human, murine, and rat Secs-1 polypeptides (Appendix A) that indicates the common attributes or characteristics shared by these sequences. Applicants further contend that the explicitly recited amino acid sequences are but an enumeration of the species of amino acid sequences that make up the genus of previously claimed generic "conservative amino acid substitutions." Applicants submit that claim 58, as amended, no longer encompasses the vast majority of polypeptides, and respectfully request that this ground of rejection be withdrawn.

Applicants further contend that because claims 15 and 62 have been similarly amended to positively recite the species of the claimed genus, claims 15 and 62, as amended, no longer encompass the vast majority of polypeptides. Applicants respectfully request that these grounds of rejection be withdrawn.

The Office Action mailed April 23, 2002 also asserts that because the effect of a particular amino acid substitution in a polypeptide variant on the structure or function of that polypeptide variant cannot be accurately predicted, one with skill in the art cannot make and use the claimed invention without undue experimentation. More specifically, the Action states that the specification does not provide sufficient guidance or direction or exemplification to enable the skilled artisan to

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immediately know which amino acid residues are important to the activity or function of the polypeptide of SEQ ID NO: 5, and that one of ordinary skill in the art could not know or predict at which positions conservative amino acid substitutions in the polypeptide sequence might be made without adversely affecting the activity or function of the polypeptides encompassed by the claims.

As discussed above, claims 15, 58, and 62 have been amended to positively recite the species of the claimed genus. The amendments to these claims are based on an amino acid sequence comparison of the human, murine, and rat Secs-1 polypeptides that indicates the common attributes or characteristics shared by these sequences. Applicants contend that, in view of the teachings of the instant specification, it would be routine in the art for one of ordinary skill to perform such a sequence comparison of the human, murine, and rat Secs-1 polypeptides disclosed in the instant specification in order to determine the positions within the human Secs-1 polypeptide sequence where conservative or nonconservative substitutions would be tolerated. Applicants explicitly provided one such example of a sequence comparison of the human, murine, and rat Secs-1 polypeptides, shown in Figure 3 of the instant specification, from which said conservative amino acid substitutions could be produced without undue experimentation. Moreover, the specification teaches – at, for example, page 23, lines 2-12 – that one of ordinary skill in the art can perform sequence comparisons of similar polypeptides obtained from different species (*i.e.*, orthologs) in order to identify residues or portions of a particular polypeptide where amino acid substitutions (such as those listed in Table I) would be tolerated. Because one of ordinary skill in the art would use the explicit teachings in the instant specification to determine the positions within the human Secs-1 polypeptide sequence where conservative or nonconservative substitutions would be tolerated without adversely affecting the activity or function of the encoded polypeptide, Applicants respectfully contend that claims 15, 58, and 62, as amended, fulfill the requirements of 35 U.S.C. § 112, first paragraph, and request that this ground of rejection be withdrawn.

The Office Action mailed April 23, 2002 also asserts a rejection of claims 40-42 and 47 under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention. The Action states that the specification does not teach any use other than in formulating pharmaceutical compositions for the chemically derivatized polypeptides of claims 40-42. The Action also states that the specification does not teach

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any use other than in formulating pharmaceutical compositions for the fusion polypeptides comprising a Secs-1 polypeptide fused to an IgG constant domain or fragment thereof of claim 47.

In order to expedite prosecution of the instant application, Applicants have canceled claims 40-42 without prejudice or disclaimer, rendering this ground of rejection moot. With respect to claim 47, Applicants note that the Advisory Action mailed September 25, 2002 states that Applicants' remarks in the Amendment filed July 23, 2002 have overcome the rejection of claim 47 under 35 U.S.C. § 112, first paragraph.

The Office Action mailed April 23, 2002 also asserts a rejection of claims 9, 15, 40-42, 46, 47, and 57-62 under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. The Action states that claims 9, 15, 40-42, 46, 47, and 57-62 are drawn to a very broad genus of polypeptides encompassing the vast majority of polypeptides and that the disclosure of two members of the claimed genus of polypeptides (SEQ ID NO: 2 and SEQ ID NO: 5) is not sufficiently representative of claimed genus.

As discussed above, Applicants have amended claims 9, 14, 15, 57, 58, 61, and 62. Applicants contend that claims 9, 14, 15, 57, 58, 61, and 62, as amended, are no longer drawn to a very broad genus of polypeptides encompassing the vast majority of polypeptides, and respectfully request that this ground of rejection be withdrawn.

With respect to claims 57 and 59-61, the Action states that there does not appear to be sufficient antecedent basis in the specification for the terms "a region of the nucleotide sequence of SEQ ID NO: 4" and "a region of the nucleotide sequence of the DNA insert in ATCC Deposit No. PTA-1755," as recited in claims 57 and 61.

Applicants note that the Advisory Action mailed September 25, 2002 states that Applicants' remarks in the Amendment filed July 23, 2002 have overcome the rejection of claims 57 and 59-61 under 35 U.S.C. § 112, first paragraph, with respect to the term "a region of the nucleotide sequence of SEQ ID NO: 4." Applicants also note, however, that the Action states that Applicants' remarks in the Amendment filed July 23, 2002 have not overcome the rejection of claims 57 and 59-61 under 35 U.S.C. § 112, first paragraph, with respect to the term "a region of the nucleotide sequence of the DNA insert in ATCC Deposit No. PTA-1755."

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Applicants respectfully contend that there is sufficient antecedent basis in the specification for this term. Claim 57 is a derivative of claim 9, which, as originally filed, recited "[a] polypeptide produced by the process of Claim 8." Claim 8, in turn, depended on claim 5, which depended on claim 4. Claim 4, as originally filed, recited "[a] vector comprising the nucleic acid molecule of any of Claims 1, 2, or 3." Claim 57, therefore, is directed to a polypeptide produced by the process of claim 8 in the host cell of claim 5, which contains the vector of claim 4, which in turn comprises the nucleic acid molecule of claim 2. Claim 61, on the other hand, is a derivative of claim 16, which, as originally filed, recited "[a]n isolated polypeptide encoded by the nucleic acid molecule of any of Claims 1, 2, or 3, wherein the polypeptide has an activity of the polypeptide set forth in either SEQ ID NO: 2 or SEQ ID NO: 5." More specifically, claim 61 is directed to an isolated polypeptide encoded by the nucleic acid molecule of claim 2. Claim 2(c), as originally filed, recited "a region of the nucleotide sequence of either SEQ ID NO: 1 or SEQ ID NO: 4, the DNA insert in ATCC Deposit Nos. PTA-1753 and PTA-1755, (a), or (b)." Applicants contend that claim 2(c) is clearly directed to an isolated nucleic acid molecule comprising (i) "a region of the nucleotide sequence of either SEQ ID NO: 1 or SEQ ID NO: 4," (ii) "a region of the nucleotide sequence of...the DNA insert in ATCC Deposit Nos. PTA-1753 and PTA-1755," (iii) "a region of the nucleotide sequence of... [claim 2](a)," or (iv) "a region of the nucleotide sequence of... [claim 2](b)." Applicants therefore contend that there is clear and proper antecedent basis in the as filed specification for the term "a region of the nucleotide sequence of the DNA insert in ATCC Deposit No. PTA-1755," and respectfully request that this ground of rejection be withdrawn.

Applicants respectfully contend that rejections based on 35 U.S.C. § 112, first paragraph, have been overcome by amendment or traversed by argument, and request that the Examiner withdraw all rejections made on this basis.

2. Rejections of claims 9, 13-16, 40-42, 46, 47, and 57-62 under 35 U.S.C. § 112, second paragraph

The Office Action mailed April 23, 2002 asserts a rejection of claims 9, 13-16, 40-42, 46, 47, and 57-62 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. The Action states that claims 14-16, 40-42, 46, 47, and 57-62 are vague and indefinite for reciting "has an

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activity," because it is unclear to which activity the claims refer, and therefore, it cannot be ascertained whether the claimed polypeptides have the required activity.

Applicants have amended claims 14, 15, 16, 57, 58, 61, and 62 to delete the phrase "has an activity." Applicants contend that claims 15, 16, 57, 58, 61, and 62, as amended, satisfy the definiteness requirement of § 112, second paragraph, and therefore, respectfully request that the rejection on this ground be withdrawn.

The Action also states that claims 9, 13, 16, 40-42, 46, 47, 57, and 59-61 are indefinite for reciting the phrase "the DNA insert in ATCC Deposit No. PTA-1755," because it is not clear to which DNA insert the claims refer. The Action further states that it is not absolutely evident that the cDNA molecule encoding the polypeptide of SEQ ID NO: 5 is the DNA insert to which the claims refer, or if the DNA insert to which the claims refer has the polynucleotide sequence set forth in SEQ ID NO: 4.

Applicants have amended claims 9, 13, 16, 57, and 61 to clearly indicate that the DNA insert to which the claims refer is the insert in ATCC Deposit No. PTA-1755 that encodes a Secs-1 polypeptide. Applicants contend that claims 9, 13, 16, 57, and 61, as amended, satisfy the definiteness requirement of § 112, second paragraph, and therefore, respectfully request that the rejection on this ground be withdrawn.

The Action also states that claims 57 and 59-61 are indefinite for reciting the phrases "a region of the nucleotide sequence of SEQ ID NO: 4" and "a region of the nucleotide sequence of the DNA insert in ATCC Deposit No. PTA-1755," because it cannot be ascertained to which region of the nucleotide sequence set forth in SEQ ID NO: 4 or to which region of the nucleotide sequence of the DNA insert in the deposit the claims refer. With regard to this ground of rejection, Applicants also note that the Advisory Action mailed September 25, 2002 states that Applicants' remarks in the Amendment filed July 23, 2002 are not persuasive.

Applicants disagree with the assertion made in both the Office Action mailed April 23, 2002 and in the Advisory Action mailed September 25, 2002 that the phrases "a region of the nucleotide sequence of SEQ ID NO: 4" and "a region of the nucleotide sequence of the DNA insert in ATCC Deposit No. PTA-1755" are indefinite. Applicants contend that one of ordinary skill in the art would readily understand that the phrase "a region of the nucleotide sequence" would refer to a *fragment* or *portion* of the entire nucleotide sequence of SEQ ID NO: 4 or the DNA insert in ATCC Deposit No.

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PTA-1755, in the same way that a polypeptide coding *region* refers to a *portion* of a full-length nucleic acid molecule containing an open reading frame. Applicants, therefore, contend that claims 57 and 61 satisfy the definiteness requirement of § 112, second paragraph, and therefore, respectfully request that the rejection on this ground be withdrawn.

The Office Action mailed April 23, 2002 also asserts a rejection of claims 9, 14, 15, and 57-62 under 35 U.S.C. § 112, second paragraph, as failing to set forth the subject matter which Applicants regard as their invention. The Action states that because claims 9, 15, and 57-62 encompass virtually every polypeptide, provided that the polypeptide is immunogenic, claims 9, 15, and 57-62 fail to correspond in scope with that which Applicants regard as the invention. The Action also states that Applicants' statements in Paper No. 12 indicate that the invention is different from what is defined in claims 9, 14, and 15, because the claims do not require the claimed polypeptide to be encoded by a nucleic acid sequence comprising the entire coding sequence of the amino acid sequence of SEQ ID NO: 5.

Applicants wish to clarify their arguments previously submitted in Paper No. 12, which may have been unclear and resulted in the Examiner's misunderstanding Applicants' position. In arguing that neither the FAPESP/LICR Human Cancer Genome Project nor Hillier *et al.* teach the amino acid sequence of Secs-1 polypeptide, Applicants were merely discussing what *those references* disclosed, and were not defining the claimed invention. It is readily apparent that neither the FAPESP/LICR Human Cancer Genome Project nor Hillier *et al.* on their face teach any amino acid sequence. Moreover, in stating that many isolated polypeptides lack an activity of the polypeptide set forth in SEQ ID NO: 5, Applicants were referring to the particular biological activity of the polypeptide set forth in SEQ ID NO: 5, and not properties common to the vast majority of polypeptides (such as immunogenicity). Applicants suggest that the alternative language of claim 14 supports, rather than contradicts, Applicants' distinction between activity and antigenicity. However, in an effort to expedite prosecution of the instant application, Applicants have deleted the phrase "has an activity" from the claims. For these reasons, Applicants respectfully request that this ground of rejection be withdrawn.

Applicants respectfully contend that rejections based on 35 U.S.C. § 112, second paragraph, have been overcome by amendment or traversed by argument, and request that the Examiner withdraw all rejections made on this basis.

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3. Rejections of claims 9, 13-16, and 57-62 under 35 U.S.C. § 102

The Office Action mailed April 23, 2002 asserts a rejection of claims 9, 13, 14, 16, 57, and 59-61 under 35 U.S.C. § 102(a), as being anticipated by the FAPESP/LICR Human Cancer Genome Project (GenBank EST Database Accession No. AW351839). The Action states that the FAPESP/LICR Human Cancer Genome Project teach a polypeptide that is 100% identical to the amino acid sequence set forth in SEQ ID NO: 5. The Action also states that because the polypeptide taught by the FAPESP/LICR Human Cancer Genome Project has the same amino acid sequence as the polypeptide of SEQ ID NO: 5, the polypeptide taught by the FAPESP/LICR Human Cancer Genome Project will have an activity of the polypeptide of SEQ ID NO: 5. Applicants traverse this rejection.

With regard to the nucleotide sequence taught by the FAPESP/LICR Human Cancer Genome Project, Applicants submit a revised Declaration under 37 C.F.R. § 1.131, originally submitted on September 25, 2002 in response to an Office Action concerning co-pending U.S. Application No. 09/599,087, which establishes invention of the subject matter of the claims rejected under 35 U.S.C. § 102(a) prior to the effective date of the reference on which the rejection is based.

The revised Declaration establishes that a proteomic-based approach was used to characterize a novel protein isolated from conditioned media obtained from squamous cell and colorectal carcinoma cell lines (Declaration, ¶ 3). The amino acid sequence of this isolated protein was determined and that sequence was used to identify EST sequences in both GenBank and proprietary databases capable of encoding the isolated protein (¶ 4). This search led to the identification of the EST sequence disclosed in GenBank Accession No. AA283751 (¶ 4). A clone purportedly containing the nucleotide sequence disclosed in GenBank Accession No. AA283751 was obtained from the Integrated Molecular Analysis of Genomes and their Expression (I.M.A.G.E.) Consortium, and the nucleotide sequence of the clone's cDNA insert was determined (¶ 5). The revised Declaration establishes that the sequence of this clone was determined before February 1, 2000, the date that the FAPESP/LICR Human Cancer Genome Project (GenBank EST Database Accession No. AW351839) reference was published (¶ 5). Moreover, the revised Declaration establishes that the open reading frame of the nucleotide sequence of the cDNA insert (SEQ ID NO: 4) differs from the nucleotide sequence of GenBank Accession No. AA283751, and that as a result of these sequence

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differences, none of the four open reading frames of the nucleotide sequence of GenBank Accession No. AA283751 encodes the full-length human Secs-1 polypeptide (SEQ ID NO: 5) (¶ 6).

Applicants contend that because the revised Declaration sufficiently establishes the invention of the subject matter of the claims prior to the effective date of the FAPESP/LICR Human Cancer Genome Project reference, the Declaration is sufficient to overcome the rejection of claims 9, 13, 14, 16, 57, and 59-61 under 35 U.S.C. § 102(a) as being anticipated by the FAPESP/LICR Human Genome Project. Applicants, therefore, respectfully request that this ground of rejection be withdrawn.

The Office Action mailed April 23, 2002 also asserts a rejection of claims 9, 14, 15, and 57-62 under 35 U.S.C. § 102(b), as being anticipated by Hillier *et al.* (GenBank EST database Accession No. AA422178). The Action states that Hillier *et al.* teach a polypeptide that is 100% identical to that amino acid sequence set forth in SEQ ID NO: 5 over the region spanning from amino acid residues 1 to 76, and therefore, that Hillier *et al.* teach a polypeptide that is truncated at its C-terminus, encoding a fragment of SEQ ID NO: 5 comprising at least about 25 amino acid residues. The Action also states that because the polypeptide taught by Hillier *et al.* has the same amino acid sequence as the polypeptide of SEQ ID NO: 5, the polypeptide taught by Hillier *et al.* will have an activity of the polypeptide of SEQ ID NO: 5.

Applicants note that because the nucleotide sequence disclosed by Hillier *et al.* lacks the nucleotide found at position 258 in the nucleotide sequence of SEQ ID NO: 4 (as shown in Appendix B), one of ordinary skill in the art would determine that the deduced polypeptide encoded by the nucleic acid molecule disclosed by Hillier *et al. differs* from the polypeptide set forth in SEQ ID NO: 5 at positions 77-81 and possesses an *additional* 17 amino acids at its C-terminal end (*i.e.*, the polypeptide predicted by Hiller *et al.* is nearly 121% larger than the polypeptide disclosed by Applicants in the instant specification).

As discussed in section 1 above, Applicants have amended claim 9 to recite "[a] polypeptide having the amino acid sequence as set forth in SEQ ID NO. 5." Applicants contend that because the polypeptide encoded by the nucleic acid molecule of Hillier *et al.* differs from the polypeptide set forth in SEQ ID NO: 5 at positions 77-81, Hillier *et al.* does not anticipate amended claim 9. Applicants, therefore, respectfully request that this ground of rejection be withdrawn.

As also discussed in section 1 above, Applicants have amended claims 15, 57, and 62 to

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positively recite the species of the claimed genus. Applicants contend that because the polypeptide encoded by the nucleic acid molecule of Hillier *et al.* has the amino acid sequence Glu-Ser-His-Arg-Cys at positions 77-81, and the polypeptides of amended claims 15, 57, and 62 have the amino acid sequence Ala-Leu-Pro-Glu-(Iso/Val) at positions 77-81, Hillier *et al.* does not anticipate amended claims 15, 57, or 61. Applicants, therefore, respectfully request that this ground of rejection be withdrawn.

Finally, as discussed in sections 1 and 2 above, Applicants have amended claims 14(b), 57, and 61 to recite that the claimed polypeptide fragments comprise at least about 25 amino acid residues, but not more than 80 amino acid residues. Applicants contend that because the polypeptide encoded by the nucleic acid molecule of Hillier *et al.* is 98 amino acids in length, and no single member of the genera of polypeptides of amended claims 14(b), 57, and 61 is greater than 80 amino acid residues in length, Hillier *et al.* does not anticipate amended claims 14(b), 57, or 61. Applicants, therefore, respectfully request that this ground of rejection be withdrawn.

With regard to claims 14, 15, 57, 58, 61, and 61, the Advisory Action mailed September 25, 2002 asserts that the proposed amendment to the claims made in the Amendment filed July 23, 2002 to recite "that the polypeptide does not further comprise the amino acid sequence of SEQ ID NO: 22," would raise the issue of new matter. Applicants note that none of the claims in the instant application recite this phrase, thereby rendering such ground of rejection moot.

Applicants respectfully contend that the rejections based on 35 U.S.C. § 102 have been overcome by amendment or traversed by argument, and request that the Examiner withdraw all rejections made on this basis.

4. Rejections of claims 9, 13-16, 17, 46, 57, and 59-61 under 35 U.S.C. § 103

The Office Action mailed April 23, 2002 asserts a rejection of claims 9, 13, 14, 16, 17, 46, 57, and 59-61 under 35 U.S.C. § 103(a), as being unpatentable over the FAPESP/LICR Human Cancer Genome Project (GenBank EST Database Accession No. AW351839). The Action states that it would have been *prima facie* obvious to one of ordinary skill in the art, at the time the invention was made, to modify the nucleic acid molecule of the FAPESP/LICR Human Cancer Genome Project so that the modified nucleic acid molecule would encode a fusion polypeptide. Applicants traverse this rejection.

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As discussed in section 3 above, Applicants submit a revised Declaration under 37 C.F.R. § 1.131 establishing invention of the subject matter of claims 9, 13, 14, 16, 17, 46, 57, and 59-61 prior to the effective date of the FAPESP/LICR Human Cancer Genome Project. Therefore, Applicants contend that the claims are not obvious under 35 U.S.C. § 103 with respect to the FAPESP/LICR Human Cancer Genome Project reference, and request that the Examiner withdraw this rejection.

The Office Action mailed April 23, 2002 also asserts a rejection of claims 9, 14, 15, 46, and 57-62 under 35 U.S.C. § 103(a), as being unpatentable over Hillier *et al.* (GenBank EST database Accession No. AA422178). The Action states that it would have been *prima facie* obvious to one of ordinary skill in the art, at the time the invention was made, to modify the nucleic acid molecule of Hillier *et al.* so that the modified nucleic acid molecule would encode a fusion polypeptide.

As discussed in section 3 above, the polypeptide encoded by the nucleic acid molecule of Hillier *et al.* differs from the polypeptides of amended claims 9, 15, 57, and 62 at positions 77-81, and is 18 amino acids longer than the any single member of the genera of polypeptides defined by amended claims 14(b), 57, and 61. In addition, there is no teaching of the instantly-claimed polypeptides, or of the nucleic acids encoding these polypeptides, in the Hillier *et al.* reference, and no teaching, suggestion, or motivation from the reference to modify the sequence disclosed therein to encode any of Applicants' claimed polypeptides. Applicants respectfully contend that because the polypeptide encoded by the nucleic acid molecule of Hillier *et al.* differs from the explicitly recited species of the genus of polypeptides defined by the claims of the instant application, the claims are not obvious under 35 U.S.C. § 103 with respect to the Hillier *et al.* reference, and request that the Examiner withdraw this rejection.

Applicants respectfully contend that rejections based on 35 U.S.C. § 103 have been overcome by amendment or traversed by argument, and request that the Examiner withdraw all rejections made on this basis.

CONCLUSIONS

Applicants respectfully contend that all conditions of patentability are met in the pending claims as amended. Allowance of the claims is thereby respectfully solicited.

If Examiner Rawlings believes it to be helpful, he is invited to contact the undersigned representative by telephone at (312) 913-0001.

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Respectfully submitted,
McDonnell Boehnen Hulbert & Berghoff

Dated: October 23, 2002

By: _____
Donald L. Zuhn, Ph.D.
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AMENDMENTS TO THE CLAIMS

Marked Up Versions of Amended Claims under 37 C.F.R. 1.121(c)(1)(ii)

9. (Twice Amended) A polypeptide having an amino acid sequence as set forth in SEQ ID NO: 5 produced by a process comprising:

(a) culturing a host cell containing a vector comprising a nucleic acid having a nucleotide sequence:

(i) as set forth in SEQ ID NO. 4;

(ii) of ~~the~~ a DNA insert encoding a Secs-1 polypeptide in ATCC Deposit No. ~~PTA-1775~~ PTA-1755; or

(iii) ~~that encodes~~ encoding a polypeptide having an amino acid sequence as set forth in SEQ ID NO. 5;

under conditions suitable to express the polypeptide; and optionally

(b) isolating the polypeptide from the culture.

13. (Twice Amended) An isolated polypeptide comprising an amino acid sequence:

(a) ~~the amino acid sequence~~ as set forth in SEQ ID NO: 5; or

(b) ~~the amino acid sequence~~ encoded by ~~the~~ a DNA insert encoding a Secs-1 polypeptide in ATCC Deposit No. PTA-1755.

14. (Twice Amended) An isolated polypeptide comprising:

(a) ~~the~~ an amino acid sequence as set forth in SEQ ID NO: 6, optionally further comprising an amino-terminal methionine; or

~~(b) an amino acid sequence for an ortholog of SEQ ID NO: 5; or~~

~~(c)~~(b) a fragment of the amino acid sequence set forth in SEQ ID NO: 5 comprising at least about 25 amino acid residues, but not more than 80 amino acid residues, wherein upon injection into an animal the fragment ~~has an activity of~~ produces an antibody that binds to the polypeptide set forth in SEQ ID NO: 5~~, or is antigenic~~.

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15. (Twice Amended) An isolated polypeptide comprising the amino acid sequence ~~as set forth in SEQ ID NO: 5 with at least one modification that is a conservative amino acid substitution, C-terminal truncation, or N-terminal truncation, wherein the polypeptide has an activity of the polypeptide set forth in SEQ ID NO: 5,~~:

Met Arg Leu Leu Xaa Leu Ser Xaa Leu Xaa Xaa Xaa Leu Xaa Leu Cys Xaa Xaa Xaa Xaa Ser Xaa Glu Gly Xaa Xaa Xaa Pro Ala Lys Xaa Xaa Xaa Xaa Arg Xaa Xaa Xaa Xaa Xaa Cys His Xaa Xaa Pro Xaa Xaa Xaa Xaa Xaa Xaa Xaa Lys Gly Xaa His Xaa Arg Xaa Cys Xaa Xaa Cys Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Trp Val Val Pro Gly Ala Leu Pro Gln Xaa,

wherein the residue at position 12 may be either methionine or isoleucine;

the residue at position 18 may be either cysteine or serine;

the residue at position 19 may be either isoleucine or valine;

the residue at position 22 may be either serine or threonine;

the residue at any of positions 25, 26, 61, or 64 may be either arginine or lysine;

the residue at position 27 may be either histidine or arginine;

the residue at position 51 may be either threonine or asparagine;

the residue at position 55 may be either asparagine or histidine;

the residue at position 81 may be either isoleucine or valine;

the residue at any of positions 5, 8, 10, 11, 14, 17, 20, 31, 32, 33, 34, 36, 40, 43, 44, 46, 47, 48, 49, 50, 52, 57, 59, 62, 66, 67, 68, 69, 70, or 71 may be any naturally occurring amino acid; and

the residue at any of positions 37, 38, 39, or 65 may be any naturally occurring amino acid or may be absent.

16. (Twice Amended) An isolated polypeptide encoded by a nucleic acid molecule comprising a nucleotide sequence:

(a) ~~the nucleotide sequence~~ as set forth in SEQ ID NO: 4;

(b) ~~the nucleotide sequence of the~~ a DNA insert encoding a Secs-1 polypeptide in ATCC Deposit No. PTA-1755; or

(c) ~~a nucleotide sequence~~ encoding ~~the~~ a polypeptide having an amino acid sequence as set forth in SEQ ID NO: 5;

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~~wherein the polypeptide has an activity of the polypeptide set forth in SEQ ID NO: 5~~.

57. (Amended) A polypeptide produced by a process comprising

(a) culturing a host cell containing a vector comprising a nucleic acid molecule having a nucleotide sequence of a region of the nucleotide sequence of:

(i) SEQ ID NO: 4; or ~~a region of the nucleotide sequence of~~

(ii) ~~the~~ a DNA insert encoding a Secs-1 polypeptide in ATCC Deposit No. PTA-1755~~;~~;

wherein the nucleic acid molecule encodes the polypeptide which is produced, ~~a~~ the polypeptide is a fragment of at least about 25 amino acid residues, but not more than 80 amino acid residues, and wherein the polypeptide fragment ~~has an activity of the encoded~~ upon injection into an animal produces an antibody that binds to the polypeptide ~~as~~ set forth in SEQ ID NO: 5~~;~~;

under suitable conditions to express the polypeptide~~;~~; and optionally

(b) isolating the polypeptide from the culture.

58. (Amended) A polypeptide produced by a process comprising:

(a) culturing a host cell containing a vector comprising a nucleic acid molecule having a nucleotide sequence encoding a polypeptide having the amino acid sequence ~~as set forth in SEQ ID NO: 5 with at least one modification that is a conservative amino acid substitution, C terminal truncation, or N terminal truncation, wherein the polypeptide has an activity of the polypeptide set forth in SEQ ID NO: 5~~,:

Met Arg Leu Leu Xaa Leu Ser Xaa Leu Xaa Xaa Xaa Leu Xaa Leu Cys Xaa Xaa Xaa
Xaa Ser Xaa Glu Gly Xaa Xaa Xaa Pro Ala Lys Xaa Xaa Xaa Xaa Arg Xaa Xaa Xaa
Xaa Xaa Cys His Xaa Xaa Pro Xaa Xaa Xaa Xaa Xaa Xaa Xaa Lys Gly Xaa His Xaa
Arg Xaa Cys Xaa Xaa Cys Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Trp Val Val Pro Gly
Ala Leu Pro Gln Xaa,

wherein the residue at position 12 may be either methionine or isoleucine;

the residue at position 18 may be either cysteine or serine;

the residue at position 19 may be either isoleucine or valine;

the residue at position 22 may be either serine or threonine;

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the residue at any of positions 25, 26, 61, or 64 may be either arginine or lysine;

the residue at position 27 may be either histidine or arginine;

the residue at position 51 may be either threonine or asparagine;

the residue at position 55 may be either asparagine or histidine;

the residue at position 81 may be either isoleucine or valine;

the residue at any of positions 5, 8, 10, 11, 14, 17, 20, 31, 32, 33, 34, 36, 40, 43, 44, 46, 47, 48, 49, 50, 52, 57, 59, 62, 66, 67, 68, 69, 70, or 71 may be any naturally occurring amino acid; and

the residue at any of positions 37, 38, 39, or 65 may be any naturally occurring amino acid or may be absent;

wherein the nucleic acid molecule encodes the polypeptide which is produced;

under suitable conditions to express the polypeptide, and optionally

(b) isolating the polypeptide from the culture.

61. (Amended) An isolated polypeptide encoded by a nucleic acid molecule comprising a nucleotide sequence of a region of the nucleotide sequence of:

(a) SEQ ID NO: 4; or ~~a region of the nucleotide sequence of~~

(b) ~~the~~ a DNA insert encoding a Secs-1 polypeptide in ATCC Deposit No. PTA-1755~~,~~;

wherein the nucleic acid molecule encodes a polypeptide fragment of at least about 25 amino acid residues, but not more than 80 amino acid residues, and wherein upon injection into an animal the polypeptide fragment ~~has an activity of the encoded~~ produces an antibody that binds to the polypeptide ~~as~~ set forth in SEQ ID NO: 5.

62. (Amended) An isolated polypeptide encoded by a nucleic acid molecule having a nucleotide sequence encoding a polypeptide having the amino acid sequence ~~as set forth in SEQ ID NO: 5 with at least one modification that is a conservative amino acid substitution, C-terminal truncation, or N-terminal truncation, wherein the polypeptide has an activity of the polypeptide set forth in SEQ ID NO: 5~~:

Met Arg Leu Leu Xaa Leu Ser Xaa Leu Xaa Xaa Xaa Leu Xaa Leu Cys Xaa Xaa Xaa Xaa Ser Xaa Glu Gly Xaa Xaa Xaa Pro Ala Lys Xaa Xaa Xaa Xaa Arg Xaa Xaa Xaa Xaa Xaa Cys His Xaa Xaa Pro Xaa Xaa Xaa Xaa Xaa Xaa Xaa Lys Gly Xaa His Xaa

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Arg Xaa Cys Xaa Xaa Cys Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Trp Val Val Pro Gly Ala Leu Pro Gln Xaa,

wherein the residue at position 12 may be either methionine or isoleucine;

the residue at position 18 may be either cysteine or serine;

the residue at position 19 may be either isoleucine or valine;

the residue at position 22 may be either serine or threonine;

the residue at any of positions 25, 26, 61, or 64 may be either arginine or lysine;

the residue at position 27 may be either histidine or arginine;

the residue at position 51 may be either threonine or asparagine;

the residue at position 55 may be either asparagine or histidine;

the residue at position 81 may be either isoleucine or valine;

the residue at any of positions 5, 8, 10, 11, 14, 17, 20, 31, 32, 33, 34, 36, 40, 43, 44, 46, 47, 48, 49, 50, 52, 57, 59, 62, 66, 67, 68, 69, 70, or 71 may be any naturally occurring amino acid; and

the residue at any of positions 37, 38, 39, or 65 may be any naturally occurring amino acid or may be absent.

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